

DOCUMENT RESUME

ED 403 470

CE 073 489

TITLE High Involvement Work Teams.
PUB DATE 96
NOTE 26p.; In: Academy of Human Resource Development (AHRD) Conference Proceedings (Minneapolis, MN, February 29-March 3, 1996); see CE 073 480.
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adult Education; *Decision Making; *Education Work Relationship; *Employer Employee Relationship; *Employment Practices; Foreign Countries; Human Capital; *Human Resources; *Labor Force Development; Learning Strategies; On the Job Training; Organizational Development; Staff Development; Teamwork; Training Methods
IDENTIFIERS Learning Organizations; Netherlands

ABSTRACT

These three papers were presented at a symposium on high-involvement work teams moderated by Michael Leimbach at the 1996 conference of the Academy of Human Resource Development. "Beyond Training to the New Learning Environment: Workers on the High-Involvement Frontline" (Joseph Anthony Ilacqua, Carol Ann Zulauf) shows the link between an individual's learning capabilities and an organization's learning and adaptation in a study of workers in a new training program as a company makes the transition from training to learning and as the individuals learn to grow continuously, develop, and problem solve. "Levels of Desired, Actual, and Perceived Control of Employee Involvement in Decision Making: An Empirical Investigation" (William M. Kahnweiler, Margaret A. Thompson) uses data from 826 nonmanagers to explore the effects of age, education, and gender on the desired and actual levels of employee involvement in decision making. The study showed that age and education, but not gender, appear to be an influence. In "The Contribution of Self Managing Work Teams to a Learning Organization" (Jeanette A. B. Huisman et al.), the work processes of fitters and electricians in an energy distribution company in the Netherlands are studied, with the goal being to improve the processes and to shift responsibilities to lower levels of the organization. Papers contain references. (KC)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

SYMPOSIUM**[8] HIGH INVOLVEMENT WORK TEAMS**

Chair: Michael Leimbach, Wilson Learning Corporation

Beyond Training to the New Learning Environment:

Workers on the High-Involvement Frontline

Joseph Anthony Ilacqua, Bryant College

Carol Ann Zulauf, Suffolk University

**Levels of Desired, Actual, and Perceived Control of Employee
Involvement in Decision Making: An Empirical Investigation**

William M. Kahnweiler, Georgia State University

Margaret A. Thompson, Georgia State University

**The Contribution of Self Managing Work Teams to a Learning
Organization**

Jeanette A.B. Huisman, University of Twente

Tanya B. Peppel, University of Twente

Wim J. Nijhof, University of Twente

Academy of Human Resource Development

1996 Conference

Minneapolis, MN

February 29-March 3, 1996

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official
OERI position or policy.

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL
HAS BEEN GRANTED BY

*C. Zulauf, J. Ilacqua,
W. Kahnweiler, J. Huisman*

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

Beyond Training to The New Learning Environment: Workers on the High-Involvement Frontline

Dr. Joseph Anthony Ilacqua
Bryant College

Dr. Carol Ann Zulauf
Suffolk University

In the new global marketplace, the effective use of advanced manufacturing requires workers with skill and also understanding of the more basic competencies and a whole organization perspective. The link between an individual's learning capabilities and an organization's learning and adaptation is highlighted in this study of workers in a new training program, as a company makes the transition from training to learning and as the individuals learn to continuously grow, develop, and problem solve to the benefit of all.

Introduction

How do individuals get into the mindset of continuously learning? Just what is the connection between individuals improving their learning and the organization being able to utilize this capability?

These are not easy questions to answer. As you will read in this ethnographic study, workers on the shop floor of a manufacturing company make the transition from the Tayloristic model of worker response to one that encourages their individual input and decision making abilities. In fact, the employees' ability to entertain a "systems" perspective is also delineated. Being able to move in this direction is vital for a company's growth and viability.

Theorists recognize that companies develop repertoires of capabilities which enable and constrain their responses to changing environments (Cespedes, 1995). This link between an individual's learning capabilities and an organization's learning and adaptation is highlighted in this study as the company makes a transition from training to learning and as the individuals learn to continuously grow, develop, and problem solve to the benefit of all.

Relationship to Other Research

Progression to high-involvement requires workers who are motivated to be actively involved in a new learning environment. This type of learning environment is all-pervasive and reflects the overall migration to a knowledge economy. In knowledge economies, the rapid pace of technological change means that learning must be constant and that education must be updated throughout one's working life. People have to increase their learning power to sustain their earning power (Davis & Botkin, 1994).

Worker education can be the catalyst affecting the change to high involvement in an organization. Schein (1985) writes of the need to break the "tyranny of culture" in a mature organization. To effectively make the evolution to a high-involvement workplace, a company must work to bring about that environment needed to foster learning, insight, and participation. "The best organizational change programs approach making changes as a learning experience" (Lawler,

1992, p. 345.) The new training goal is to train workers to develop as technology continues to change (Ashburn, 1986; Beard, 1991a; Beard, 1991b). Training programs must now be judged in terms of empowering workers with direct responsibility for decisions affecting production and quality (Carnevale, 1991).

Data verifies the linking of education, training, organizational structure, productivity and income (Carnevale, 1991). As published by the Conference Board (1995), *Forbes' "Annual Report on American Industry"* rates companies on measures such as profitability, growth, sales, net income, and profit margin. Using the report's profitability measure, "high" performance enhancement companies were found to outperform those with few or no enhancement programs.

Although production worker training forms an integral part of the Tayloristic work model, that training was often built upon the most limited definition of skill. Today, the effective use of advanced manufacturing requires workers with skill and understanding beyond any specific limited area. Now, more generic concepts of entire plant perspective, teamwork, and the development of learning skills (Ashburn, 1986) are the essential skills in fostering the growth and development of both the individual and the organization.

Peter M. Senge (1990) makes the point that companies and all human endeavors are systems, not unlike rainstorms and other natural designs. As a part of the lattice, it is very hard for the individual to see the whole pattern, to see beyond an isolated part or specific task. The workers in this study are pleased with their learning and the use of their own skills. They also like using their training as a source of responsibility and authority and to see their job as a part of a whole. For Senge, "systems thinking" is the integrating skill that fuses other skills together. For many of the trainees, learning was arousing that kind of thinking.

Research Methodology

This paper is based on an ethnographic study of workers who volunteered to participate in a training program at a manufacturing plant in transformation to a high-involvement organization and work cell arrangement. The specific focus is on acquiring an understanding of the learning experience of workers taking part in the organizational change. Data was collected through participant observation at the plant, in-depth interviews, observation of classes and shop floor activities, and from a focus group. For the purpose of this paper, the company that served as the research site for this paper will be called Gansett.

Going From Training to Learning

Often traditional training of equipment operators involved task learning, with no theory or explanation. Training, involving disciplining workers in simple, repetitive tasks, was typical of that done to support a Tayloristic production process. There still is some of this training going on at Gansett and the program being studied has some procedural training in it.

Don Riley, the engineer conducting the program compared his classes, which teach both practice and theory, to the old teaching.

We had pretty much 'do as I do' type training, with someone who may or may not be qualified to operate the machine correctly, showing another individual, who probably has never seen the machine before, and has no understanding of its workings, how to run it without hurting himself.

However, hands-on training, problem-solving and a variety of operating skills are seen as important by the trainees. Procedural training has become very individualized and specifically problem-oriented within this program. Malcolm S. Knowles (1984) asserts that the best environment for adult learners is a non-authoritarian, less formal, cooperative atmosphere; the instructor's role would be that of facilitator, catalyst and guide, in a process built around what the

learners feel they need to know (Bell, 1989; Knowles, 1984, 1989a, 1989b; Zemke & Zemke, 1988). This would be an apt description of the training program studied.

Practical application was a very important part of the classes even when theory was the topic. The start-up of the cell work organization provided Al, the engineer who introduced the cells to Gansett, and Don, with a chance to offer practical conceptual skill training. They began training on the shop floor:

We spent almost full-time for three months working with the two operators and really bringing them up to speed. We were teaching what a good drill looks like, why different drill geometries, why you use this end mill as opposed to another end mill, what's a 20% carbide insert. A lot of things were not associated with their job, but we wanted to make these people knowledgeable, as quickly as possible.

The literature raises important questions regarding positive transfer of training to the job. The obvious rationale for worker training is the belief that students will effectively apply the understanding, skills and views from class to the shop floor. However, the degree to which this takes place is often not clear. The degree of learning transferred to the job is said to vary with both training style and the acceptability of the new learning within the company and within the trainee's own department (Baldwin & Ford, 1988). However, it is clear that Don's interactive training style and the workers' acceptance of the new learning generates a high level of transfer.

The Evolving Nature of The Learning

At Gansett learning has been in a process of evolving as shop needs changed and knowledge developed. After three years, Riley sees the program at a crossing point where he must make sure that goals are very clear-cut so that everyone "knows what those goals are and can achieve them." One thing he feels strongly about is that people comprehend that "a better understanding of the world of machining" is not the final goal. "I want successful people."

The evolving nature of training at Gansett and the goal of personal success for the trainees does seem clear. The goals include: Giving the trainees the opportunity to keep learning, improving ability on the shop floor, and one that seems most important, "start using you human resources correctly or lose your skilled work force." Don's idea is that if the workers' skill is not appreciated at Gansett they will have the credentials needed to move on.

At this stage in their personal development, the majority of trainees wanted to keep learning. They have become "adult lifelong learners" with particular interest in what they see as their profession. John Dewey (1916) wrote: "Real education starts after we leave school and there is no reason why it should stop before death." In class, trainees were quick to offer both functional and hypothetical illustrations of the topic at hand. On the shop floor, machine operators were observed reading machine shop manufacturing magazines while "babysitting" their high tech equipment or while on break. During class breaks and on the floor, trainees often wanted to talk about global competition and Japanese human resource use, referring to what they had read or seen on television. Trainees often answered questions on their reasons for volunteering for the classes saying, "You can never learn too much."

A goal of the instructors is to give the trainees confidence on the shop floor. The students revel in that directed confidence. You can see and hear joy in their learning during the class. They like to tell what has been going on the floor and how what they learned works. Matt shared this story with the basic class:

I'm getting the knowledge that, I don't think there were many people in here who were freely giving. I can give you an example....It helped me a whole heck of a lot. We kept having these cap problems.... Now, Don is telling us that, through studies, it doesn't matter if you've got...80% thread or 60% thread, the

pull-out power is the same. So as soon as I learned this, I changed all my drill sizes, ...and never had a problem with the caps again. Now we can stop going by trial and error.

Trainees' interest in their own work is advanced by building plenty of practical application into his teaching. Leo was gratified with the progress of his learning and its application. He related:

If I learn something ... I can understand it. I've picked up a lot from the people I work with. I didn't know much when I got here. [Now I can] communicate better with the engineer, which is very good. You're trained to do everything. ...No matter what's running, you can run it.

An important part of Don's training philosophy is that people from the floor, engineers and production workers should do the training. Moving the training to this milieu advances the evolving nature of learning.

Continuous Learning

Although learning is sought for a variety of reasons, customary judgment is that, for adults, learning is usually not sought as its own reward. Learning is most often a means to an end. Yet, many adults do study for the sake of learning itself (Zemke & Zemke, 1981; Merriam & Caffarella, 1991). Among this group of self-selected trainees, learning for learning's sake and for gaining credentials for financial gain or to help land a new job after being laid off are of about equal weight as reasons for taking part in the training. Lifelong learning, the practice of continuously and purposefully acquiring knowledge formally or informally in order to maintain or improve an employment edge or for personal improvement, became a mode of the Gansett trainees (Schfritz, 1988.)

Sharie, a ninth grade dropout, became bored at home after three children. When she took a job at Gansett, work kindled an interest in learning. She completed her GED and worked her way into the training program:

...because you never know too much. It's always good to learn something. I know my job; I know what I'm doing, but you can get stagnant doing things. I always volunteer to learn something new. You never know. It'll always come in handy sometime. Life doesn't end in that department.

Another woman said:

I think most people realize that you have to repaint and re-look at things because they are done differently today. You have to keep up with it. [This class]...is related to a lot of things I deal with...I help and teach certain aspects of it, which is fun, a lot of fun because you really feel responsible...

There is an element of learning for learning's sake among workers who will take the training and apply the proficiency learned to their job, but resist moving to high-involvement jobs. Matt, a student in the basic class, claimed that he had no interest in going into a cell to work. However, he loved to talk about using the power his new knowledge gave him in his current job. He clearly felt that the class had given him more practical understanding of his work and the ability to take part in decision making.

Now I just go right up to the methods engineer and say, 'Look I have this problem...and I think...' ...and I'm sure if I point it out to him he's going to say,

'Yeah, you're right.'

The feelings and reasoning of these Gansett trainees exhibit what adult education theory infers. Building or maintaining self-esteem is often a strong motivating factor, along with job advancement. In addition, the application of learning to relevant problems and integration of new and already known ideas are important (Zemke & Zemke, 1981; Merriam & Caffarella, 1991).

When Bud was asked in what way the training had helped him most he said:

I communicate better with the engineer directly.... You can take an engineer and sit down, understand what he is saying, and the engineer is going to understand what you are trying to get across.

Theory, as well as personal experience, teaches that adults have an aversion to the risk of new behavior before peers. Yet, they openly bring a great deal of experience to class, where sharing it with fellow students greatly advances learning. Social and cultural influences play a crucial role in adult participation and success in formal education such as corporate training (Zemke & Zemke, 1981; Merriam & Caffarella, 1991). These points were obvious from observation of training class interaction at Gansett. Training classes provide a source of social relationships. Sue, coming from a very low-skill job, credited a skilled worker in her department with talking her into volunteering for the program. She had this to say about her fellow students:

I don't know any of these people here, but they're all...a lot of fun....and they don't knock you down, although I feel stupid if I ask questions....they're always willing to help...explain.

Bo talked about more skilled trainees who brought sample problems to class from the shop floor:

...that's good...somebody [with less experience] will ask the question. Any one of us will answer them... I've never seen where somebody's 'I'm better than you. Why should I bother?' Everybody has been very cordial.

Systems Perspective and Benefits to the Organization

To think systemically involves the ability to see connections among seemingly unrelated parts. There is also the inherent capability to live with uncertainty and to look for the underlying systemic structure of any given situation. What this means in practice is the realization of a time delay between an action and its consequences, that one needs to understand that immediate closure to a problem may not be as immediate as one would like. This requires patience and the development of understanding.

Whatever their perspective at the start of the program, the Gansett trainees now have a "systems" view of their work and of scholarship.

An engineer studying with the advanced class told this story of Gansett's move to the new training and the importance of a systems perspective on the production line:

The CNC machine...it's a wonderful tool but you need good operators. They're not just button pushers; they have to be able to diagnose problems...know how to correct a problem and even get in and edit a program...

The wisdom on the shop floor is that the new learning environment has been forced up into the company, forced up by workers who saw a need to learn more about the whole production process. "It came from the floor up, not from the top down." In Don Riley's view:

The need came from the shop floor, created with the help of the shop floor. I went [to the production workers] to find out just what to teach and where we wanted to go with the training. I got a lot of input from the individuals on the shop floor, who were running the processes at the time. They were the ones that badgered the living daylights out of their supervisors.

Other workers illustrate the key characteristics of systemic thinking. Sharie is a coordinator who takes responsibility for much of the production planning in her department. Her systems perspective and interest in benefits to the organization was clear when she talked about hurricane Andrew's effect on the demand for her department's products. Although the coming of Fall usually meant a cutback in hours worked in her department, Sharie convinced the foreman that they should keep production levels up because of rebuilding that would be taking place. She talked of the opportunities from rebuilding, but also of her concern that shoddy construction practices had given fastener systems such as Gansett's a bad name. Sharie said that the company should make sure that building inspectors and building code boards got the right message. This is a systems perspective from a ninth grade dropout, who after three children become weary of household management. She also trains operators on the shop floor. In the training program, she joined in helping build what looked a lot like Peter Senge's "Learning Organization," "...where people continually expand their capacity to create the results they truly believe in" (Senge, 1990a. p. 3).

Bo talked about the fact that production issues had replaced sex and sports as break time topics for trainees:

...they're allowed to use their minds a little bit, kicking the cobwebs out....
...these guys love this course, jogging and getting their minds active. They say, 'Let me look and see what I'm really doing' versus 'I'll just do it' They've caught a lot of things...that should be straightened out, where, without this course, they would have never.... [Before] it was 'If it works, it works.' Now it's, 'It can be better, why do it this way?'

Trainees are keen on the importance of global competition and the connection between competitiveness and their well being. Although they are suspicious of motives, they do accept the inevitability of change. When Sharie said, "Gansett won't be here twenty years down the line, unless we smarten up," she was expressing a view of reality that trainees feel demands action.

Floyd is a machine operator who has been with Gansett for five years. As he sees things:

The Company is making a major transition. Their ultimate goal is to...compete better with offshore competition. They've been trying to cut and streamline to make it more efficient.

Betty Jane serves in a downsized Quality Assurance Department. She expressed excitement about the changes taking place: "I like what I'm doing! ...building quality into the work" is important for competitive success. "Japan has done this."

Like most of the trainees in the program, she was cognizant of and articulate about changes affecting her:

Manufacturing is going through another industrial revolution...more of a technological angle... I have to be more versatile. It's necessary to keep your education going ...[it] keeps you up to date, because everything is changing so fast... In today's world, you have to know everything to keep even."

The most positive assertion on the change under way at Gansett was narrated by Gloria. She works in a department transformed to an autonomous work group, independent of the cell program. She talked about her new involvement and its effect on her and Gansett.

I enjoy being able to have responsibility to make my own decisions. At this time, we're trying to work out problems we have with the first shift because there has to be communication between both shifts to be able to make the whole thing work right.

We make our own hours. We check the production schedules. If, by the end of the week, it seems like we're behind, we can schedule our own overtime... Say we need maintenance, we go right to the maintenance department. The boss actually wants us to make all our own decisions. We make all our own decisions between the group.

It may work out better, in the long run, that way because we know better what we're doing. As far as someone sitting upstairs in an office...things may work out on paper for them, but to be right here, on the floor, may not be the same.

Now, I'm losing money when the machine is shut off so the stressful part of winding wire is gone. [The department is now on salary.]
...of course, we have to fix the machines. ...when the machine shuts off, the company is losing money. I have to look at it like that's my job also... If we're not pleasing the customers by getting the orders they want out on time, then these customers aren't going to reorder.

The impetus associated with the Gansett trainees' new skills and learning is self-motivated. Feelings of satisfaction come from their work, but also, from the program. They are pleased with their knowledge and the use of their skills and with working and studying with others who now have similar understanding. They are also pleased to use their training as a source of responsibility and authority and to see their job as a part of Gansett. In talking about learning, they integrate their skills with the change at Gansett and with the change in the global economy. While there is an expected financial component to the seeking of knowledge, they also want to learn for learning's sake.

Conclusions

For the workers in this study learning is an evolving process, as needs change and knowledge matures. Whatever their perceptions at the start, the trainees have adopted a life-long mindset with a systems view of work. The trainees in this study are willing to embrace empowerment, responsibility, and learning. Much of the impetus associated with these workers' new skills and learning is self-motivated, based on their perception of the workplace reality around them. They integrate their learning with the change at work and with the change in the global economy.

The effective use of advanced manufacturing requires workers with skill and also understanding of the more basic competencies and a whole organization perspective. The question of what specific skills workers should learn is becoming less important. Today not only are jobs becoming more complex, but firms want more flexibility and responsibility from workers. Workers must stay abreast of rapidly changing technology and accept greater responsibility; they must also become full members of an evolving learning organization. Organizational learning allows for the growth and enhancement of individual capabilities for the benefit of both the individual and the organization. The key unifying skill of organizational learning, systems thinking, requires the ability to see the overall patterns inherent in any given situation in order that the most effective decision can be made. It is an ever-evolving process. The workers in this study have been very satisfied with their learning and the use of their own skills. There has been a renewed commitment on the part of the workers for continued involvement, growth, and learning--this can only augment the overall effectiveness and viability of the organization.

Bibliography:

- Albert, M. (1985). Assessing cultural change needs. Training and Development Journal, 94-95, 98.
- Albert, M. (1991). We can break the catch up syndrome. Modern Machine Shop, 64 (3), 78-89.
- America's Choice: High Skills or Low Wages. (1990). New York: National Center on Education and the Economy.
- Ashburn, A. (1986). People and automation. American Machinist, 1, 98-112.
- Baldwin, T.T., & Ford, J.K. (1988). Transfer of training: A Review and directions for future research. Personnel Psychology, 63-102.
- Beard, T. (1991)a. Paying for a more intelligent shop floor. Modern Machine Shop, 64 (3), 98-100.
- Beard, T. (1991)b. The training program that never ends. Modern Machine Shop, 64 (3), 88-95.
- Bell, C.R., & Friends (1989). Malcolm. Training and Development Journal, 38-43.
- Carnevale, A.P. (1991). American and the new economy. Achieving national literacy by the year 2010: A call to action. Business Council For Effective Literacy, 28, 5-9.
- Cespedes, Frank V. (1995). Concurrent Marketing: Integrating Product, Sales, and Service. Boston: Harvard Business School Press.
- Davis, Stan & Botkin, Jim. (1994). "The Coming of Knowledge-Based Business." Harvard Business Review. (Vol. 72, No. 5, September-October).
- Knowles, M.D. (1989a). Everything you wanted to know from Malcolm Knowles (and weren't afraid to ask). Training, 45-50.
- Knowles, M.D. (1989b). The Making of an Adult Educator. San Francisco: Jossey-Bass.
- Knowles, M.D. (1984). Androgogy in Action. San Francisco: Jossey-Bass.
- Lawler III, E. E. (1986). High-Involvement Management. San Francisco: Jossey-Bass.
- Lawler III, E. E. (1989). Substitutes for hierarchy. Incentive, 39-45.
- Lawler III, E. E. (1992). The Ultimate Advantage. San Francisco: Jossey-Bass.
- Merriem, S.B., & Caffarella, R.S. (1991). Learning in Adulthood. San Francisco: Jossey-Bass.
- Schein, E. H. (1985). Organizational Culture and Leadership. San Francisco: Jossey-Bass.
- Senge, P. M. (1990). The Fifth Discipline. New York: Doubleday.
- Shafritz, J.M. (1988). The Facts on File Dictionary of Education. Elmsford, NY: Pergamon Press.
- The Conference Board, (1995), Report Number 1107-95-RR, "Performance Enhancement: Harnessing Potential for Productivity: A Research Report," New York.
- Zemke, R., & Zemke, S. (1988). Thirty things we know for sure about adult learning. Training, 57-61.

Levels of Desired, Actual, and Perceived Control of Employee Involvement in Decision Making: An Empirical Investigation

William M. Kahnweiler
Margaret A. Thompson
Georgia State University

Using data obtained from 826 non-managers, this paper explores the effects of age, education and gender on the desired and actual levels of employee involvement in decision-making. Analysis of five decision-making dimensions indicated that though age and education appear to have an effect on desire for employee's involvement in decision-making processes, gender does not appear to be an influence. A discussion of this study's implications for HRD and suggestions for future research is presented.

The topics addressed in employee involvement research are diverse. These include participative decision making (Abdel-Halim, 1983; Alutto & Acito, 1974; Alutto & Belasco, 1972; Bragg & Andrews, 1973; Connor, 1992; Leana, Ahlbrandt, & Murrell, 1992; Locke & Schweiger, 1979; Schweiger & Jago, 1982; Schweiger & Leana, 1986), total quality management in general and quality circles in particular (Barrick & Alexander, 1992; Bruning & Liverpool, 1993; Dean, 1985; Griffin, 1988; Marks, Mirvis, Hackett, & Grady, 1986), participative management (Burgio, Whitman & Reid, 1983), employee participation programs (EPPs), (Castrogiovanni & Macy, 1990; Clegg & Wall, 1984; Cooper, Dyck & Frohlick, 1992; Cotton, Volrath, Froggatt, Lengnick-Hall & Jennings, 1988; Cotton, Volrath, Lengnick-Hall, & Froggatt, 1990; Graham & Verma, 1991), empowerment (Conger & Kanungo, 1988; Parker & Price, 1994), self-managed work teams (Manz, 1992), and autonomous work groups (Pearson, 1992; Wall, Kemp, Jackson, & Cleff, 1986). Because the topics related to employee involvement emerge from various fields of interest and have been under the guise of so many different labels, the research about it is both extensive and somewhat diffuse.

Taken collectively, the available empirical evidence suggests that employee involvement (EI) has moderate effects on employee satisfaction and performance (Alutto & Acito, 1974; Collins, Ross & Ross, 1989; Glew, O'Leary-Kelly, Griffin, & Van Fleet, 1995; Graham & Verma, 1991; Lawler, Mohrman, & Ledford, 1992; Locke & Schweiger, 1979; Miller & Prichard, 1992; Miller & Monge, 1986; Wagner, 1994; Wagner & Gooding, 1987; Yammarino & Naughton, 1992). Perhaps due to the fact that much of the research on EI has focused on these two outcome variables and that the effects of EI on them have been shown to be less than substantial, a call has been made to shift the focus of EI research. It has been argued, for example, that limiting EI research to the examination of satisfaction and performance outcomes reflects unrealistic expectations of EI effects (Ledford & Lawler, 1994). Furthermore, it has been noted recently that numerous aspects of EI have been ignored by researchers and now is the time to begin investigation of these issues (Wagner, 1994). What are some of these other aspects of EI that beg for empirical examination?

Gaps in Employee Involvement Research One issue pertains to the settings in which EI research is conducted. It appears that prior studies have tended to collect data from one or a few organizations at a time. Few have obtained data from many organizations at a time. Second, the data on EI tends to come from managers and HR professionals; relatively few studies have obtained EI data from those who are the "recipients" of the EI process — the rank-and-file (Glew et al., 1995). Third, the majority of EI research to-date appears to have taken place in large manufacturing companies. Comparatively speaking, little EI research has been conducted in smaller organizations in the service and non-profit sectors.

The second major gap in EI research that has been noted is the kind of data collected from subjects. Many studies have examined personality variables and their relationship to EI and job satisfaction and performance. Glew et al. (1995), and Passmore and Fagans (1992) suggest that more

attention be devoted to subjects' demographic characteristics, especially as they relate to the willingness or desire to participate in decision making. In addition, they call for more research on individual differences in demographics in response to EI in general as opposed to the more common practice of studying subjects' responses to existing EI programs. "By and large, research on participation has assumed that all employees are willing to participate...despite evidence to the contrary...certainly, individual difference factors may play a role here" (Glew et al., 1995, p. 408).

A third major need in EI research has to do with methodological shortcomings of prior research. Specifically, previous studies have tended to rely on surveys that were too brief to be considered psychometrically sound. While validity and reliability are relative (and not absolute) constructs, utilizing instruments with a handful of items leads one to question the usefulness of the data collected by them. As noted recently by Glew et al., "Some of these measures seem to make rather shallow assessment of participation by using either single or dual item scales...Measurement work should focus on developing methods for assessing individual perceptions of actual and desired participation, as well as related individual difference constructs" (1995, p. 416).

In sum, EI researchers have called for studies which examine factors others than job satisfaction and performance and to explicitly test the underlying assumption of much of this research, which is that employees want to be involved in various work place decisions. Furthermore, studies which collect data from numerous small and medium-sized non-manufacturing organizations at the same time and from the rank-and-file within those organizations has been cited as a need. Lastly, it has been suggested that EI research obtain richer data through the development of more extensive surveys. The present study has attempted to address these needs in a meaningful way.

Research on Desired Versus Actual Levels of Involvement There have been several studies which assessed the difference between the actual and desired levels of involvement based on employee's perceptions. Ahlto and Acito (1974) defined this gap in terms of the difference between the number of decisions employees wanted to make and the number they actually made. However, this study appears to have suffered from the methodological shortcoming cited earlier (i.e., survey instrument too brief). More recently, Hatcher, Ross, and Collins (1991) compared desired and actual levels of EI; yet, they collected data from managers rather than the employees themselves.

Two fairly recent studies have appeared to have been responsive to many of the needs for EI research cited earlier. Miller and Prichard (1992) collected data from over 200 rank-and-file employees on actual and desired levels of involvement as well as several demographic factors such as age, level of union activity, and education level. Unfortunately, this study took place in one manufacturing plant and therefore did not examine the gap between desired and actual levels of EI in other settings. In a study by Freeman and Rogers (1994), the difference between actual and desired levels of EI was found to be substantial. They utilized a telephone survey approach with employees in several different organizations, including those outside manufacturing. One possible limitation of this study was that the areas of decision making which were examined seemed to be fairly narrow. That is, employees were asked about only six types of decisions.

The major purpose of this study was to address some of the critical needs expressed by those who have synthesized prior EI research. It attempted to tap the perceptions of large numbers of employees in a variety of organizations, particularly those in non-manufacturing and in those outside the Fortune 1000. Another goal was to expand upon the nature and scope of decisions which had been examined in previous research (see Miller & Prichard, 1992 and Freeman & Rogers, 1994) on the difference between actual and desired levels of involvement. In addition to demographic factors such as age which have been examined in previous research, this large scale research project looked at other demographic factors which have been presumed to be associated with EI but have been subjected to limited empirical testing. These include factors such as type of industry, job tenure, job function and gender. Finally, this study departed from many others in that it elicited employees' perceptions of EI in general as opposed to their reactions to an existing EI program.

To achieve the multiple goals of this study, it was thought that pure randomization of a smaller sample would be less desirable than partial randomization of a larger sample. Therefore, 55 organizations were targeted for the subject pool, based on the lead researcher's contacts. Within each of the 55 organizations, subjects would be randomly chosen to participate.

This was a large-scale study. As such, only a portion of the data is reported here, as much of it remains to be analyzed. The focus of this paper will be an analysis of the effects of age, education and

gender on the desired and actual levels of involvement in and control over decision making. The other demographic factors used in this study will be reported in subsequent documents. Since the research on desired versus actual levels of involvement in many of the types of decisions examined in this study appears to be rather sparse, and since the broad spectrum of organizations from which this study collected data appears to have little precedent, the study reported here is exploratory in nature. Therefore, specific hypotheses were eschewed in favor of this approach.

This study posed the following questions: Which employees really want to be involved? In what kinds of decisions do they want to be involved and to what degree? In which kinds of decisions are they actually involved, and to what degree? And, how much control do they believe they have over their jobs?

Method

Survey Development A survey instrument was developed to measure the levels of employees' desired, actual and perceived control over decision making. The initial step in this process was to uncover instruments used in prior research and to then determine if one or more of them, in whole or part, could be used to achieve the purpose of this study.

Schuler and Kim (1978) developed a survey on employee participation based on expectancy theory (Porter & Lawler, 1968; Vroom, 1964). While this instrument was shown to have positive psychometric properties, it did not address specifically the issue of actual versus desired levels of participation. More recently, a survey created by Graham and Verma (1991) assessed differences between how much say employees should have in various decisions compared with how much say they actually have in them. A similar approach was utilized by Freeman and Rogers (1994). These surveys were based on the assertion forwarded by Rice and his colleagues (Rice, McFarlin, & Bennett, 1989) that the appropriate standard of comparison in such research is how much employees want to be involved in various decisions (as opposed to their expectations regarding the outcome of their involvement in these decisions). The survey used in the present study drew upon these latter two instruments. However, both were somewhat limited in terms of the nature and scope of work place decisions assessed. In order to adequately address the range of issues posed in this study, the kinds of work place decisions were expanded beyond those assessed by both Graham and Verma (1991) and Freeman and Rogers (1994).

The resulting instrument contained 33 questions. For each of 12 areas of decision making (e.g., how work gets done, how fast it gets done, how it is assigned, how co-workers are evaluated, determining training needs), one question asked how often the employee's supervisor asks for their involvement and another asked how often the employee wants to be asked by the supervisor for their involvement.

The instrument was piloted with a group (N=35) of employees. Based on the results, a few of the questions were re-worded to maximize clarity and minimize the possibility of multiple or erroneous interpretations. The average length of time needed to complete the survey was reported to be 8 minutes and 30 seconds.

Survey Respondents A total of 840 non-managers responded to the survey. Their responses were tabulated by a research assistant and cross-checked for accuracy. The responses from 14 subjects were either of questionable validity (e.g., one subject indicated they were both genders) or incomplete. These were dropped from the analysis, resulting in 826 usable surveys.

As mentioned previously, a major goal of the study was to elicit data from non-managers of varying ages, levels of education, amounts of job and organizational tenure, and job functions. In addition, non-management employees who worked outside of manufacturing and in small to medium-sized firms were particularly sought since most of the employee involvement research to-date appears to be have relied upon data from large manufacturing organizations. A total of 55 organizations were represented in the sample. A summary of the respondents' demographics is available upon request. It indicated that the goals for the sample were reasonably met.

In order to facilitate data analyses, groupings within some of the demographic characteristics were collapsed. For example, respondents indicated 16 different industries in which they worked. These were grouped into 3 categories: Service (e.g., health care, financial services), Product (e.g., manufacturing, utility), and Non-Profit Institution (e.g., education, government).

Data Analysis The two-page survey contained 33 questions, of which six were demographic in nature and comprised the independent variables. The remaining 27 questions elicited data on the

dependent variables: desired ("wants") levels of participation in decision making, actual ("asks") levels of participation in decision making, and levels of employee's perceived control ("control") over his or her job. The dependent variables were rated on a five-point Likert scale ranging from "never" to "always." The types of decisions ranged from the pace of work and problems of quality to personnel decisions and organizational policy issues. For example, question 1 is an "asks" question and reads: "My supervisor/manager asks for my opinion about how the work gets done." A "wants" question (#2) reads: "I want my supervisor/manager to ask for my opinion about how the work gets done."

To determine if gender had an effect on an employee's: (1) perceived control over decision making ("control"); (2) actual level of participation in decision-making ("asks"); or (3) desire to participate in decision making ("wants"), t-tests were conducted. One-way ANOVAs were used to investigate whether the age of employee or level of education had an effect on "asks," "wants," or "control." When significance was found, Tukey Post Hoc Analyses were used to determine which groups had significantly different levels of desired, actual, and perceived control of employee involvement in decision making.

Results

Factor Analysis Of the 24 questions regarding desired and perceived levels of participation in decision making, factor analyses yielded four meaningful dimensions of decision making. They were: (1) "asks1," nine questions referring to how much the employee is asked for opinions/input regarding various non-coworker issues and decisions (Chronbach's alpha = .8799); (2) "asks2," three items about how much the employee is asked for opinions/input regarding his or her coworkers (Chronbach's alpha = .7815); (3) "wants1" referring to nine questions about how much the employee wants to be asked his or her opinion/input about non-coworker issues and decisions (Chronbach's alpha = .9253); and (4) "wants2" representing those three items about how much the employee wants to be asked his or her opinion/input about coworkers (Chronbach's alpha = .8185). The three questions regarding perceived control were grouped together as one dependent variable.

Analysis of Data by Demographics The t-tests revealed that men and women do not differ significantly on all five dimensions of decision making. (See Table 1.) In terms of age, employees between 25 and 48 want to be asked significantly more than those younger than 25 years of age for opinions/input about non-coworker issues [$F_{1,700} = 11.65, p < .001$]. Also, employees aged 37 to 48 were significantly more interested in being asked for opinions/input about coworkers than those below 25 years of age [$F_{1,775} = 3.08, p < .027$]. (See Table 2.)

TABLE 1
Gender

Subscale	Group 1 (n=271) Male		Group 2 (n=516) Female		t	p
	Mean	SD	Mean	SD		
Asks1	2.71	.96	2.67	1.01	.54	.59
Asks2	2.19	.92	2.11	.96	1.16	.25
Wants1	3.57	.81	3.60	.74	-.64	.52
Wants2	2.68	1.19	2.60	1.11	.91	.36
Control	3.62	.95	3.68	.97	-.84	.40

TABLE 2
Age

	Group 1 (n=137) <25 yrs		Group 2 (n=323) 25-36		Group 3 (n=256) 37-48		Group 4 (n=81) >48		F	p	Post-Hoc
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
Asks1	2.53	1.00	2.78	.96	2.70	1.00	2.58	1.04	2.30	.08	—
Asks2	2.04	.96	2.09	.88	2.25	.99	2.14	1.01	1.99	.11	—
Wants1	3.26	.93	3.67	.69	3.70	.69	3.50	.84	11.65	.00	3,2>1
Wants2	2.43	1.08	2.59	1.14	2.77	1.13	2.71	1.19	3.08	.03	3>1
Cont.	3.47	1.03	3.73	.96	3.69	.93	3.65	.95	2.36	.07	—

The categories for level of education were defined as: 1=high school; 2=some college; 3=bachelor's degree; and 4=post baccalaureate. Employees with higher levels of education (at least a bachelor's degree) want and are asked to take part in decision making about non-coworker issues more than those with less education [ASKS1: $F_{3,347} = 7.2284$, $p < .001$, WANTS1: $F_{3,347} = 18.5268$, $p < .000$]. However, all employees regardless of education level are generally not asked to participate in coworker decisions by their managers. Employees with more education want to be involved in issues regarding coworkers. Likewise, employees with higher levels of education perceived that they had more control over their jobs than other groups [Education x Control: $F_{3,399} = 7.3793$, $p < .001$]. (See Table 3.)

TABLE 3
Education

	1 High School n=153		2 Some College n=259		3 BA/BS n=262		4 Higher Degree n=130		F	P	Post-Hoc
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
Asks1	2.42	1.01	2.66	.93	2.73	1.00	2.97	.99	7.23	.0001	3,4>1;4>2
Asks2	2.07	1.00	2.09	.86	2.17	.96	2.27	1.00	1.46	.2248	—
Wants1	3.19	.92	3.62	.71	3.69	.65	3.79	.74	18.53	.0000	2,3,4>1
Wants2	2.31	1.13	2.57	1.15	2.80	1.11	2.81	1.07	7.37	.0001	3,4>1
Control	3.43	1.02	3.60	.92	3.71	.95	3.94	.94	7.38	.0001	3>1;4>1,2

Discussion

This section presents the major conclusions drawn from the results of this study, and their implications for HRD and management practice. The limitations of the study and suggestions for further research will be specified.

Conclusions Below is an overview of the major findings and possible explanations for them.

Gender. The results of this study indicate that gender is not a factor in how much employees want to be involved in various work place decisions nor in how much they are asked to be involved in them. The finding that males and females do not differ in terms of how much they wish to be involved in decision making supports previous research (Freeman & Rogers, 1994; Miller & Prichard, 1992). Therefore, the conventional wisdom that females desire more collaborative, inclusive, and participatory decision making strategies whereas men tend to be more comfortable in a traditional, hierarchical, "command and control" environment is suspect.

Age. Unlike gender, age was found to have a significant effect on employees' desire for involvement in decision making processes. Those ages 37-48 wanted the most involvement, not only in decisions which impact them and the organization, but also in decisions about coworkers. Furthermore, employees younger than 25 and older than 48 generally do not want to be involved in decisions as much as those between 25 and 48. Perhaps older employees have become somewhat jaded or skeptical in reference to employee involvement. This study did not explore possible reasons for this finding, but perhaps older employees have witnessed past attempts by the organization to initiate EI and concluded that management's intent was not genuine or that EI was merely a vehicle to add to their workload (Kahaweller, 1991).

It is important to note that age was *not* found to be a factor in how much employees were asked to be involved in decision making. In other words, like gender, managers apparently do not discriminate by employee age in terms of how much they ask for employees' input on various decisions. Considerable additional research is needed to ascertain if age is a factor of desired involvement level and, if so, its reasons.

Education. A higher level of education was clearly found to be an indicator of wanting and asking to be involved in decisions about a variety of job, unit, and organization-wide issues. Interestingly, more highly educated employees (i.e., those with college degrees) wanted to be involved in decisions about coworkers significantly more than non-college degreed employees, but were generally *not* asked to be involved in these issues. At the same time, the college-degreed employees tended to perceive themselves as having significantly more influence over decisions which affect them at work compared to those with less formal schooling.

These findings contrast with those of Freeman and Rogers (1994), who found that education level was *not* a factor in desired level of involvement. The data also suggest that managers wish to retain control over decisions regarding their subordinates (i.e., employees' coworkers). Despite the fact that college-degreed employees want to be involved in issues such as selection of coworkers, apparently managers do not wish to be responsive to this desire. Aside from decisions pertaining to coworkers, it does appear that managers are willing to involve more highly educated workers in the decision making process. It may be that the more formal education employees have, the more managers trust them and therefore the more they ask for their input on non-coworker issues.

It should also be noted that while employees with more education want and are asked for more involvement on non-coworker decisions, there does appear to be a gap between how much involvement these employees want and how much involvement their managers are asking of them. Thus, while managers seem to involve certain employees more than others in certain types of decisions, from the employees' perspective, they still desire higher levels of involvement on those decisions.

Implications This study explored issues about EI that have previously received relatively little attention, so it seems to have raised more questions than it answered. Nevertheless, two fairly clear implications emerge.

Taken collectively, the results from this study suggest that some employees are not interested in increasing their participation in work place decisions while others have this desire but may not be afforded ample opportunities to be involved. Furthermore, some employees want more involvement in

some types of work place decisions but not others. Clearly, managers and those who assist them (e.g., HRD professionals) need to be attuned to these differences before launching an EI program which embraces a "one size fits all" mentality. Directing employees to be more involved in decision making if they are not interested in involvement seems contradictory and hypocritical at best. Many would consider it unethical to compel anyone to be involved in an EI effort.

The second major implication pertains to the gap between how much involvement employees say they want and how much opportunity they have to exercise it. Even with decisions in which employees wanted more involvement and felt their managers asked them to be involved, there remained a noticeable difference between the desired and actual levels of involvement. One way to narrow this gap, as noted by Freeman and Rogers (1994), is to give employees a say in how EI programs are designed and run.

Limitations While this study attempted to minimize many of the methodological weaknesses attributed to much of the EI research to-date (Glew et al., 1995), it was not without its own shortcomings. Two limitations are particularly worth mentioning here.

First, the data was obtained via self-report measures. Although every assurance was taken to maintain the anonymity of respondents, there was no guarantee that they responded honestly. And like any other study which utilizes self-report measures, this one assessed perceived realities rather than observable, measurable, verifiable behavior. Secondly, although respondents within a given organization were randomly selected, and although the participating organizations represent what appears to be a reasonable cross-section of industries, sectors, and sizes, the participating organizations were not selected randomly. Thus, the results obtained from this investigation should be interpreted and generalized with some caution.

Further Research Because the issue of desired versus actual levels of involvement in decision making has received very little empirical testing, the avenues for future research seem almost limitless. However, several streams of research seem most promising at this point.

One stream would involve testing whether or not the gender mix of the supervisor and employee impacts actual and desired involvement levels. A second effort should be devoted to replicating this study with a stratified random sample of organizations and employees. Third, research which examines desired versus actual involvement levels on decisions examined in this study combined with those assessed by Freeman and Rogers (1994) seems warranted. Finally, it is recommended that a follow-up to the current study be conducted to determine why employees do or do not wish to increase their levels of involvement in various decisions as well as why their managers do or do not wish to encourage more involvement from them.

In conclusion, this study has tested the pervasive assumption underlying much EI research: employees want to be more involved in decision making. It appears that this assumption, like many in general and those regarding EI in particular, is erroneous. It seems clear that those who traditionally have been considered key players in the success or failure of EI initiatives (managers and HR professionals) need to consider the other key stakeholder group (employees) in the process. Specifically, they need to incorporate employees' level of desired involvement in a variety of decisions before launching any formal EI effort. By considering employees' desire to increase or limit their involvement in both the design and implementation of EI efforts, the outcomes of those efforts are more likely to be beneficial for both the organization and those who work in them.

Note: Given space limitations, some tabular depictions of the data and a reference list have been excluded here and are available from the authors upon request. Below are the references most pertinent to this study.

References

- Ahutto, J. A. & Acito, F. (1974). Decision participation and sources of job satisfaction: A study of manufacturing personnel. *Academy of Management Journal*, 12(1), 160-167.
- Bragg, J. E. & Andrews, I. R. (1973). Participative decision-making: An experimental study in a hospital. *The Journal of Applied Behavioral Science*, 9, 727-735.

- Castrogiovanni, G. J. & Macy, B. A. (1990). Organizational information processing capabilities and degree of employee participation: A longitudinal field experiment. *Group and Organization Studies*, 15, 313-336.
- Collins, D., Ross, R. A., & Ross, T. L. (1989). Who wants participative management? *Group and Organizational Studies*, 14(4), 422-445.
- Cotton, J. L., Volrath, D. A., Froggatt, K. L., Lengnick-Hall, M. L., & Jennings, K. R. (1988). Employee participation: Diverse forms and different outcomes. *Academy of Management Review*, 13(1), 8-22.
- Cotton, J. L., Vollrath, D. A., Lengnick-Hall, M. L., & Froggatt, K. L. (1990). Fact: The form of participation does matter—A rebuttal to Leana, Locke, and Schweiger. *Academy of Management Review*, 15, 147-153.
- Freeman, R. B., & Rogers, J. (1994). *Worker representation and participation survey: A report on the findings*. Center on Wisconsin Strategy, University of Wisconsin.
- Glew, D. J., O'Leary-Kelly, A. M., Griffin, R. W., & Van Fleet, P. D. (1995). Participation in organizations: A preview of the issues and proposed framework for future analysis. *Journal of Management*, 21, (3), 395-421.
- Graham, J. W., & Verma, A. (1991). Predictors and moderators of employee responses to employee participation programs. *Human Relations*, 44(6), 551-567.
- Griffin, R. W. (1988). Consequences of quality circles in an industrial setting: A longitudinal assessment. *Academy of Management Journal*, 31, 338-358.
- Hatcher, L., Ross, T. L., & Collins, D. (1991). Attributions for participation and nonparticipation in gainsharing-plan involvement systems. *Group & Organization Studies*, 16, 25-44.
- Kahnweiler, W. M. (1991). A review of the participatory management literature: Implications for HRD research and practice. *Human Resource Development Quarterly*, 2, 229-250.
- Miller K. I. & Monge, P. R. (1986). Participation, satisfaction, and productivity: A meta-analytic review. *Academy of Management Journal*, 29, 727-753.
- Miller, R. W. & Prichard, F. N. (1992). Factors associated with workers' inclination to participate in an employee involvement program. *Group & Organization Management*, 17(4), 414-430.
- Rice, R. W., McFarlin, D. B., & Bennett, D. E. (1989). Standards of comparison and job satisfaction. *Journal of Applied Psychology*, 74, 591-598.
- Schuler, R. S., & Kim, J. S. (1978). Employees' expectancy perceptions as explanatory variables for effectiveness of participation in decision making. *Psychological Reports*, 43, 651-656.
- Wagner, J. A. III (1994). Participation's effects on performance and satisfaction: A reconsideration of research evidence. *Academy of Management Review*, 19, 12-330.

The Contribution of Self Managing Work Teams to a Learning Organization

Jeanette A.B. Huisman

Tanya B. Peppel

Wim J. Nijhof

University of Twente

EDON is a company for energy distribution in the north and east of the Netherlands. Subject of the study was the work processes of the fitters and electricians. This is part of a project called 'improving effective and independent working of fitters and electricians'. The study's goal is to improve the work processes of the fitters and electricians and to bring responsibilities to a lower level in the organization.

EDON is one of the largest Energy-Distribution Companies in the Netherlands. It is an organization of 3.500 employees divided among five Regional Energy Companies (REC's). EDON was founded by a fusion of different energy companies. This scaling-up was necessary to join the international energy monopoly-game. The uniting of Europe means that EDON has to compete with foreign energy companies and this will affect their present monopoly position.

The five Regional Energy Companies (REC's) are responsible for the distribution of energy (gas, water, electricity) within their own region. The REC's are involved with the local and regional developments in their own area.

EDON wants to belong the best energy distribution companies in the Netherlands. She wants to be the best in class, quality and services. Therefore, EDON emphasizes reduction of costs, new services and new markets. The effectiveness of the work processes and employees is central to this idea. Enterprise, responsibility, enthusiasm and high quality are the desired characteristics of the employees. At this moment every hierarchical level of EDON is being tested on it's merit. EDON wants to place immediate responsibilities at the lowest levels in the organization.

Four target departments in every Regional Energy Company are involved in the project. In each department there is a severe division between a group of planning engineers and a group of fitters and electricians. Each department has it's own head. Before the scaling-up was realized, every head of department lead up to ten fitters and electricians. After the scaling-up, he had to deal with thirty or forty. At that moment the role of planning-engineer was created. This role is performed by employees who used to be either head of department, fitter or electrician. Fitters and electricians perform the job that is prepared by the planning engineers. In the old situation, the work was planned and divided every day by the head of department. In the new situation, the work is planned and divided once a week by the planning engineer. Fitters and electricians are now to be expected to plan their own work for a whole week independently. This weekly issue of work assumes specific skills by the fitters and electricians to organize their work for a whole week efficiently and independently. Training can be the right solution to support them in their new responsibilities. For this reason the project was started with the following problem formulation: *concerning weekly work issue fitters and electricians have to perform their job independently. Further research is needed to find out how independent fitters and electricians work and which training is required.*

Activities were undertaken to get a more precise formulation and to gather relevant information that could attribute to the solution of the problem. The target of this problem analysis was described as follows: *how effective and independent do fitters and electricians work in the present situation of the five regional energy companies? and which problems need to be solved to attribute to the fitter's and electrician's independence and efficiency?*

Problem Analysis

The problem was analyzed by gathering information on five topics:

1. The internal organization: the mission, target and vision of EDON; the culture and philosophy of the organization; and interference that occur within the organization. Information was gathered by performing a document study and interviews.
2. The external environment: opportunities and threats from the environment to EDON (trends, developments, economy, politics, technologies). Information was gathered by performing a document study.
3. Work processes: the extent of the fitter's and electrician's independence and efficiency was investigated by performing his job. The work processes concerning the fitter and electrician can be divided in three phases: planning the job, performing the job and after-care (table 1). Information was gathered by performing a written investigation and interviewing by electricians, fitters, heads of departments and planning engineers.
4. Technologies: the influence of present technologies (computers) on efficiency and independence was investigated. The planning engineer uses an information system called PMS (Project Management System). It is used for the planning of the jobs and the logistics of materials used by the electrician and fitter. The information was gathered by making interviews and attend a demonstration of PMS.

Table 1. Three phases in the work processes (Huisman, c.s., 1994)

Phase I. Preliminary tasks performed by the planning engineers: The way the planning engineer performs the planning: • check the situation on the job to determine time, costs, materials and to look for the job that has to be done • discuss costs and other things with the customer on the job; • planning of time, materials and capacity; - pre calculation of time, materials and costs; • gather designs, determine the materials and send letters; Planning tasks performed by the fitters and electricians: • gathering designs; • check the situation on the job (materials, time, etc.) • make appointments with customers Phase II. Performance: • the possibilities for the electricians and fitters to plan their jobs independently and make decisions; • visits on the job by the planning engineer or the head of department • the involvement of the head of the department with the electrician and fitter; • the number of interruptions during the performance of the job Phase III. After-care: • gathering information for the subsequent calculation • analysis of information • information on effective performance of fitters and electricians appeal to responsibilities
--

In this part the results of analysis of the present situation are elaborated

No Mutual Cooperation and Openness. Most planning engineers work for themselves without consult each other. Electricians and fitters notice that planning engineers do not understand each other's work. Electricians and fitters especially take note of the fact that planning engineers are absent (day off or ill). Also, the cooperation between departments can be improved, because of the lack of a good communication and accordance.

Little Involvement and Motivation of the Fitter and Electrician to the Organization. Fitters and electricians are minimally involved with the organization. This influences their motivation. The following causes the minimum involvement and low motivation:

Weekly Work Issue. As a result of this weekly work issue fitters and electricians see each other less. Because they visit the firm less. Fitters and electricians mention the decreasing possibilities for exchanging work experiences.

Coaching on the Job. Coaching on the job by the head of department hardly takes place, because of lack of time. Planning engineers don't have enough time to visit the job, because of increasing administrative tasks. The visits of the planning engineer to the job is vary from 'once in three days' to 'once a month'. Projects and jobs are more frequently planned from drawings behind their desk.

Work Consultation. Work consultation between the head of department and the fitters and electricians can be improved. Most of the time, 'top down-announcements' are made by the head of department. This work consultation can be characterized as one-sided. Fitters and electricians are hardly involved in the consultation.

Involvement of the Head of Department with the Fitters and Electricians. The head of department has little involvement with the fitter and electrician. Though he is hierarchically spoken responsible for personal support to the fitter and electrician, he does not act in this way. He hardly sees them at all. The relationship between the head of department and the fitter and electrician is less strong than the relationship between the planning engineer and the fitter and electrician.

Top-down/organizational changes. Fitter and electricians follow a wait-and-see policy, caused by the organizational changes over the last five years. Fitters and electricians (and planning engineers) expresses that everything is decided at the top without their involvement. Fitters and electricians feel as though they are a number in the organization.

Bureaucracy. The EDON organization can be characterized as being bureaucratic. Planning engineers have to deal with a lot of forms and procedures. At least four hours a day they are occupied with administrative tasks. The planning engineers function is becoming more and more administrative.

No information on effective performance of fitters and electricians. It can be concluded that the head of departments and the planning engineers have little or no information on effective performance of the fitters and electricians. The lack of information is caused by the planning engineers, who make no clear pre and subsequent calculation of spent time, costs of materials of a project or job, and by the fitters and electricians, who hardly ever review the projects or jobs after completion. They are not aware of costs, spent time or used materials. The planning engineers or head of department do not make them aware of these things. Fitters and electricians do not have to answer to their head of department for costs, used materials or spent time.

Restrictions of the fitter's and electrician's independence and efficiency. The preparation and performance of tasks are strictly separated in the present work situation of the fitters and electricians. Usually there is one and sometimes two planning engineer(s) for every three fitter and electrician. Planning engineers tend to plan all projects and jobs to all extremes. Each day is strictly planned. The fitter and electrician need not plan their jobs as appointments with customers have already been made. Moreover they are interrupted in performing their work because of odd-jobs. The fitter and electrician do not have enough influence in the planning process and not enough room to make independent decisions. The fitters and electricians feel strongly restricted in the performance of their jobs by the planning engineers.

Problem Statement

In order to get a clear view of the problem, the problem first was expressed in terms of the present and desired situations.

In table 2 the conclusions about the present situation are summarized and at the same time a desired situation is outlined.

Table 2: Comparison of the present and desired situation of EDON.

Present situation	Desired situation
1. No mutual cooperation and openness; 2. Little involvement and motivation of the fitters and electricians to the organization; 3. Bureaucracy; 4. No information on effective performance of fitters and electricians; 5. Restriction of the fitter's and electrician's independence and efficiency.	1. Mutual cooperation and openness; 2. High involvement and motivation; 3. No bureaucracy, aimed at results; 4. Information available on effective performance so that it can be improved; 5. Fitters and electricians can work independently and efficiently.

The following problem statement was agreed upon:

The present independence and efficiency of the fitters and electricians is strongly restricted. There is no information on their effective performance. The involved departments can be characterized as a bureaucratic with little mutual cooperation and openness. There is little motivation and involvement of the fitter and electrician to the organization.

Task Enrichment

We concluded that there is a severe difference between 'thinking' and 'performing'. The planning-engineer thinks for the fitters and electricians. The latter only perform their job. These severe differences influence their involvement and motivation. Task enrichment attributes to the enhancement of efficiency and independence and the involvement and motivation of the fitter and electrician. Task-enrichment can be described as *'the performance of more tasks, so that the fitters and electricians get more control over their job'*. This means that fitters and electricians should perform more planning tasks and should become more employable. Task enrichment has four great virtues.

Increasing Efficiency and Independence. The fitter or electrician is no longer dependent on the planning engineer. He plans his own work on the job instead of the planning engineer doing this. He gathers the information needed, determines the materials needed, makes appointments with customers etc. He can work independently as he makes his own diagnosis and solves the problem himself.

Less Co-ordination- and Communication Problems. Frequent communication with the planning engineer is not needed. The planning engineer has not enough time to visit the workplace and plan the job. He plans the job behind his desk. In several cases the planned job doesn't fit with the real situation that the fitter and electrician meets. So, the fitter and electrician often have to contact the planning engineer and waste a lot of time before performing their job.

Greater Responsibility and Involvement. As the fitter or electrician plans the job by himself, he will feel more responsible and involved with the job that has to be done. He has to take care that the planning matches with the performance and the calculation afterwards.

Greater Awareness of Costs. As fitters and electricians make a calculation of the costs, they will be more aware of this. The involvement with and responsibility for a good calculation is related to performing the job effectively and efficiently.

Self Managing Work Teams (SMWT)

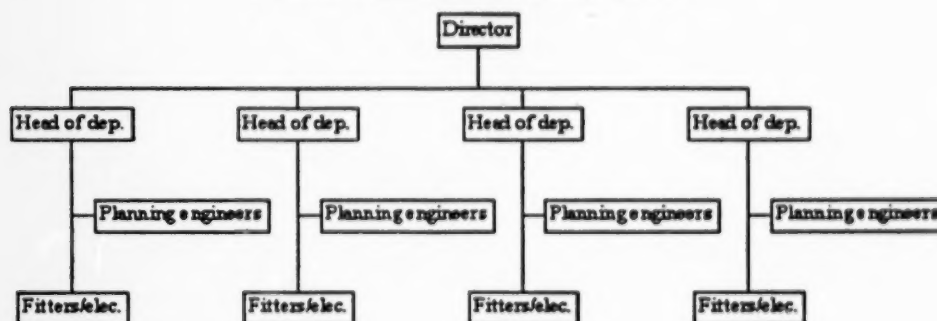
We searched for a better way to organize work and that meets task enrichment for the fitter and electrician. We searched for a work situation in which they are no longer restricted in performing their job. We studied the possibility of Self Managing Work Teams as fitters and electricians can be responsible for the whole work processes in which they are involved.

Self Managing Work Teams can be described as follows (Van Amelsvoort & Scholtes, 1994): *'a fixed group of employees who are responsible for the whole work process in which products or services are realized. The team plans and control the process, solves problems and improves processes and work methods, without constantly appeal to leading service's.* According to Joosse (1990) the following results can be achieved by implementing task groups: shorter delivery time, increasing productivity saving wage expenses, increasing flexibility and decreasing absenteeism caused by illness

Three Proposals for a Better Work Situation

We made three proposals for a better work situation, in which working in SMWT's is taken as a starting point (Huisman c.s., 1995). We defined the SMWT as: *'A group of employees who are responsible for a self-contained work process. In this work process products and services of EDON will be delivered by self managing activities. It is not constantly necessary to appeal to management or supporting services.* The following characteristic features had been formulated for the self managing work teams: the group will be appealed on responsibilities and performance; the optimal number of persons in the group is 8 - 12; the group will be working together during a longer period (one year); the group will be involved in effectiveness and efficiency. the group formulates group targets. These targets agree to the targets formulated by management. sons to work with self managing work teams are: shorter communication lines; greater flexibility as fitters and electricians perform more tasks; higher involvement and motivation as the group is involved in the whole work process. Another reason is the responsibility for their own performance; an increased productivity because management and responsibility lie within the group;

Figure 1: organization structure proposal I



Proposal 1. The first situation meets closely to the present situation of EDON. The present organizational structure will be maintained. The fitters and electricians work together with the same planning engineer. They form a self managing work team. Depending on the situation, the fitter and electrician perform more or less preparation tasks. The planning engineer performs the same preparation tasks as in the present situation (figure 1).

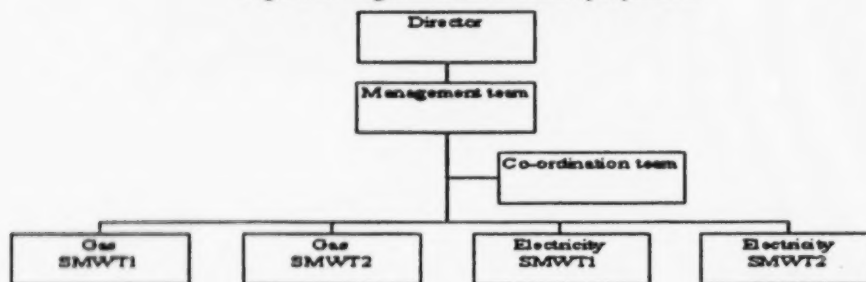
Changes in behavior will occur when the conditions and tasks of employees are changed. This proposal appeals to a change of attitude. Much depends on the initiatives that the fitter and electrician take. Much depends on the willingness of the planning engineer to create more space

for the fitter and electrician. It is to be expected that nothing will really change. Also, the present number of planning engineers will remain the same. It means that each SMWT consists of 6 persons and that the SMWT will not be flexible enough. It is to be expected that the yields of flexibility, independence and effectiveness will fail to appear.

Proposal 2. All fitters and electricians work together in a SMWT. Besides performing tasks, they will perform a number of preliminary tasks. All planning engineers work together in a coordination team. They will perform a number of preliminary tasks. All chiefs of department work together in one management team (figure 2).

Fitters and electricians perform more preliminary tasks. It is therefore to be expected that fitters and electricians will work more effective, more flexible and independent. The coordinators in the coordination team can perform each others tasks. It is to be expected that this cooperation will also attribute to more flexibility and an effective way of working. It is also to be expected that the number of planning engineers and chiefs of department can be reduced.

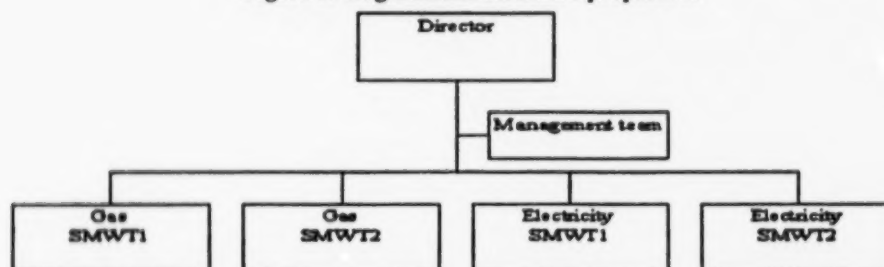
Figure 2: Organization structure proposal 2.



Proposal 3 All fitters and electricians work together in a SMWT. Besides performing tasks they will perform a number of preliminary tasks. One planning engineer is the leader of an SMWT. He performs a number of preliminary tasks. All heads of department work together in the same management team (figure 3).

It is to be expected that the SMWT in this proposal will attribute to the most flexible independent and effective way of working. The SMWT is totally responsible for preparation and preliminary tasks. The SMWT in this proposal is the most flexible and independent one. It has also the shortest communication lines. It is to be expected that the involvement and motivation will be higher than the SMWT in proposal 2. This will lead to greater effectiveness and efficiency. It is also to be expected that the number of planning engineers and heads of department can be reduced.

Figure 3: Organization structure proposal 3.



There is no doubt that proposal 3 has our preference. It is the best suited to meet the targets formulated by EDON. However proposal 3 demands a great change for the employees in performing their tasks and responsibilities. On the one side it can create much uncertainty and

resistance among the employees. On the other side it offers an interesting challenge. Proposal 3 assumes high demands on knowledge, independence and skills. This demands more attention to training consultancy, support and the elimination of resistance among employees.

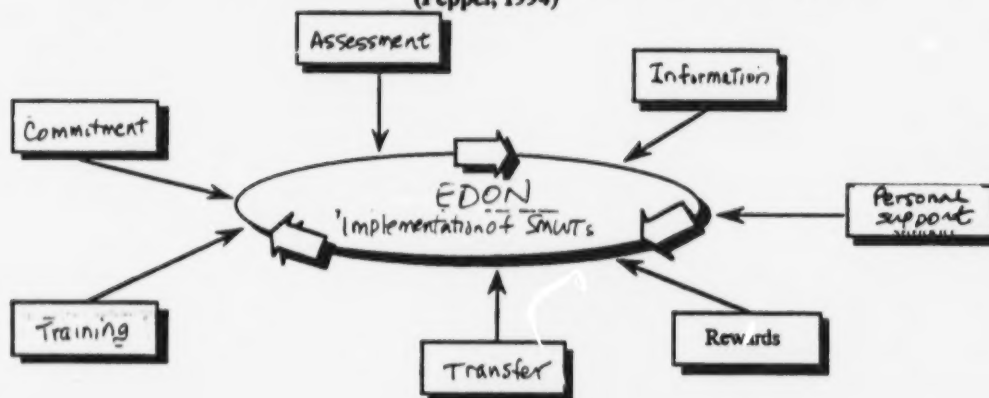
The Implementation of Self Managing Work Teams

The implementation of SMWT's can be seen as a transformation process. A transformation process aimed at transforming the organization into a learning organization. Therefore the behavior and attitude of the EDON employees has to be changed. In a learning organization work and training are strongly related to each other (Van Tellingen & Kense, 1992). Training has to contribute to improving the functioning of the employee on the job. Training is one of the interventions that are needed with organizational changes.

The implementation of SMWT's can be characterized as changing the reality. This reality is influenced by actions or interventions. An intervention can be described as 'Organized activities for the people involved in the implementation of SMWT's. These organized activities fit to the management and the organizational culture of EDON.

An integral approach of the SMWT-implementation interventions will be most effective. During the process of change different interventions will be used (figure 4).

Figure 4. Integral use of interventions during an organization learning process (Peppel, 1994)



By implementing SMWT's in EDON, the need for training is huge. The members of the SMWT not only will have to learn new skills, but also other ways of working and communicating. The members of the SMWT have to form a team, but it takes time to become a good team. The process team building can be described as improving the individual consciousness and the development of interpersonal skills. It is important to pay attention to the process of team building at the start. The following processes need serious attention:

- handle new tasks and roles within the team
- handle new responsibilities
- handle new communication structures
- handle problems and conflicts

Management team members also need extra training as they have an important role in coaching the SMWT. This role is crucial for the fitter and electrician as they have to deal with a new work situation and new tasks. Task enrichment means adapting to unexpected situations and creating solution to unfamiliar problems. The managers have an important motivational task, they must provide necessary support and are expected to coach the fitter or electrician. Feedback is an useful instrument and enables the fitter and electrician to correct and change behavior. The coach has a hierarchical relationship

with the fitter and electrician and must be able to give positive as negative feedback as well. Also, he must be able to deal with personal problems.

A second intervention is developing commitment. At the beginning, during and after the implementation of SMWT's it is important that the change process is supported organization wide. A radical process, as the implementation of SMWT's can never survive on a few people's support alone.

It is important that the employee who is going to perform the job is competent or can be brought up to the desired competency-levels. Weaknesses in a person's functioning can be found by using assessment. Assessment is the process of gathering information in order to measure a person's competencies. Instruments used by assessment are simulations, tests and interviews. HRD plays an important role in increasing the present competency-levels.

EDON has to inform the employees about what is going to change and how this will be done. Information on changes is needed to get management approval for these changes. It is important that management convince her employees of the desirability of change and informs them on the progress. Insufficient information flows cause extra resistance.

Every changing process comes along with uncertainties. Personal disappointments are to be expected. It is important to meet these reactions and to pay attention to personal support during and after the implementation of SMWT's.

The rewarding system has to be motivating for the involved employees. It has to be a clear stimulation to improve and to learn. Rewards should not only be financial but also personal.

Transfer can be described as the extent in which learning results are put into practice after training. In this case that means that planning engineers must let go of present planning tasks must put their coaching skills into practice. While fitters and electricians must perform new planning tasks, must adapt to new situations and must invent practical solutions on the job. All this in less time and leading to better services.

Conclusions

At this moment EDON has to decide whether they take the challenge of implementing Self Managing Work Teams in its organization. SMWT's can attribute to growing to a learning organization, as it invites EDON to discuss existing norms, obstructed organizational opinions, rules and methods. The process of implementing SMWT's provides EDON with the possibility to reflect on daily experiences and improving work processes by those experiences. So EDON can become a learning organization in the nearby future.

The starting point for developing a learning organization is the awareness that an organization has to learn in a continuously changing environment. The implementation of SMWT's enables EDON to anticipate optimal on changes in it's environment and to maintain a best in class position.

References

- Amelsvoort, P. en Scholtes, G. (1994). *Zelfsturende teams ontwerpen, invoeren en begeleiden*. Oss: ST-Groep. The Netherlands.
- Huisman, J.A.B., Nijhof, W.J., Peppel, T.B. & Schrik H.M. (1994). *Algemene onderzoeksresultaten*. Enschede: Universiteit Twente, faculteit der Toegepaste Onderwijskunde.
- Huisman, J.A.B., Nijhof, W.J. & Schrik, H.M. (1995). *Op weg naar Resultaat Verantwoordelijke Groepen*. Enschede: Universiteit Twente, faculteit der Toegepaste Onderwijskunde.
- Joosse, J.B. e.a. (1990). *Zelfstandig samenwerken in autonome taalgroepen*. COB/SER.
- Peppel, T.B. (1995) *Procesverslag, Doelmatigheid en zelfstandigheid van monteurs in de lerende organisatie*. Enschede: Universiteit Twente, faculteit der Toegepaste Onderwijskunde.
- Tellingien, Van, R.M.W. & J.C. Kense (1992). *Opleidingsmanagement, een inleiding in de lerende organisatie*. Leiden/Antwerpen: Stenfert Kroese.